AMEM3-277HAVZ

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Encapsulated

The AMEM3-277HAVZ series is an efficient 3W AC-DC power supply module. Offering a commercial input voltage range of 85-305VAC, output voltage ranges from 3.3-24V, low power consumption, high efficiency, high reliability, and safer isolation.

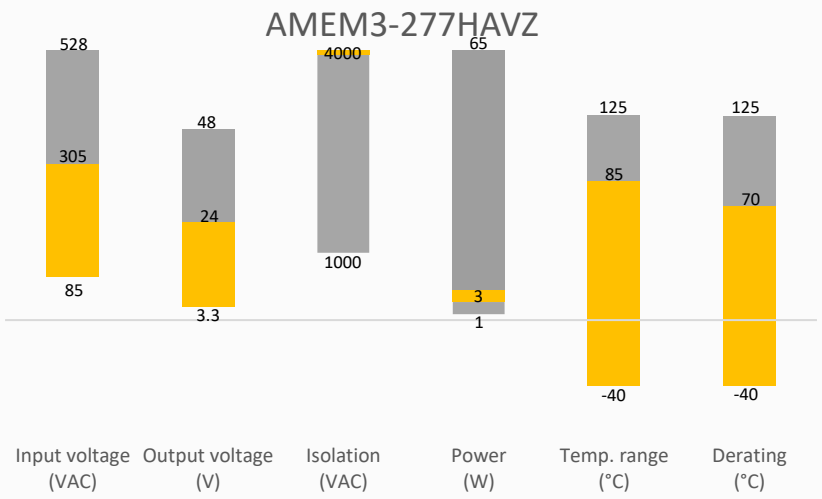
This new series offers great operating temperatures, from -40°C to 85°C with full power up to 70°C and features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 1,000,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AMEM3-277HAVZ is suitable for grid power, LED, instrumentation, industrial controls, communication, and civil applications.

Features

- Universal Input: 85 - 305VAC/100 - 430VDC
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 100mV(p-p), max.
- Output short circuit, over-current, over-voltage protection
- Low no-load power consumption of 0.1W
- Efficiency up to 79%
- Agency approvals: IEC/EN/UL62368, EN60335, EN61558

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

Power Grid | Industrial | Telecom | Instrumentation

Models & Specifications

Single Output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Max Output wattage (W)	Output Voltage (V)	Output Current max (A)	Maximum capacitive load (µF)	Efficiency @ 230VAC Typ. (%)
AMEM3-3S277HAVZ	85-305/47-63	100-430	3	3.3	0.9	4000	70
AMEM3-5S277HAVZ	85-305/47-63	100-430	3	5	0.6	3000	74
AMEM3-9S277HAVZ	85-305/47-63	100-430	3	9	0.333	1200	78
AMEM3-12S277HAVZ	85-305/47-63	100-430	3	12	0.25	1200	79
AMEM3-15S277HAVZ	85-305/47-63	100-430	3	15	0.2	680	79
AMEM3-24S277HAVZ	85-305/47-63	100-430	3	24	0.125	220	79

Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC		80	mA
	230VAC		60	mA
Inrush current	115VAC	15		A
	230VAC	25		A
Leakage	277VAC, 50Hz		0.25	mA RMS
Recommended External Fuse	1A/300V, Slow blow, *required*			

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	3.3Vout	±3		%
	Others	±2		%
Line regulation	Full load	±0.5		%
Load regulation	0-100% load	±1		%
Ripple & Noise*	20MHz bandwidth	50	100	mV p-p
Hold up time	115VAC	5		ms
	230VAC	50		ms

* Ripple and Noise are measured at 20MHz bandwidth with a 10µF electrolytic capacitor and a 1µF ceramic capacitor. Please refer to the application note for specific details.

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, leakage ≤ 5mA	4000		VAC
Resistance I/O	500VDC, 25°C, 70%RH	100		MΩ

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Protection class	Class II			
Over current protection	Auto recovery	≥ 110		% of Iout
Over voltage protection	3.3/5Vout, voltage clamp, hiccup		7.5	VDC

	9/12Vout, voltage clamp, hiccup		17	VDC
	15Vout, voltage clamp, hiccup		20	VDC
	24Vout, voltage clamp, hiccup		30	VDC
Short circuit protection	Hiccup, Continuous, Auto recovery			
Switching Frequency		65		KHz
Operating altitude			5000	m
Operating temperature	See derating graph	-40 to +85		°C
Storage temperature		-40 to +105		°C
Reflow soldering temperature	Duration 5 - 10s	260		°C
Manual soldering temperature	Duration 3 - 5s	360		°C
No-load power consumption	230VAC	0.1		W
Power Derating	+70 °C to +85 °C, 3.3Vout	2.33		%/°C
	+70 °C to +85 °C, others	1.33		%/°C
	85VAC to 100VAC	1.33		%/VAC
Temperature coefficient		±0.02		%/°C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	Plastic (flammability to UL 94V-0)			
Weight		16		g
Dimensions (L x W x H)	1.00 x 1.00 x 0.59 inches (25.40 x 25.40 x 15.0 mm)			
MTBF	> 1 000 000 hrs (MIL-HDBK -217F, t=+25°C)			

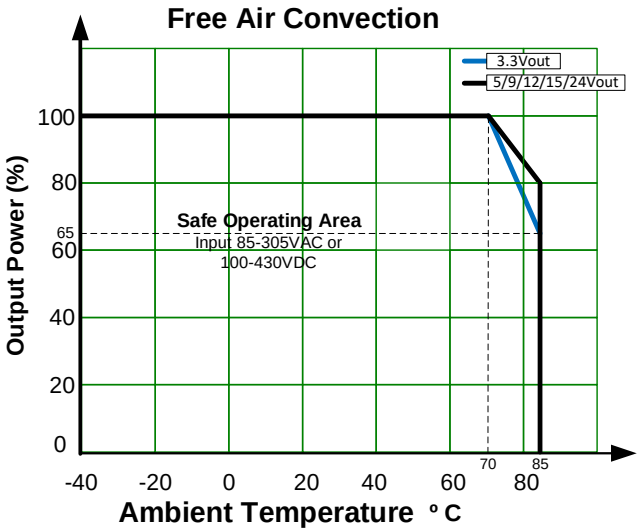
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

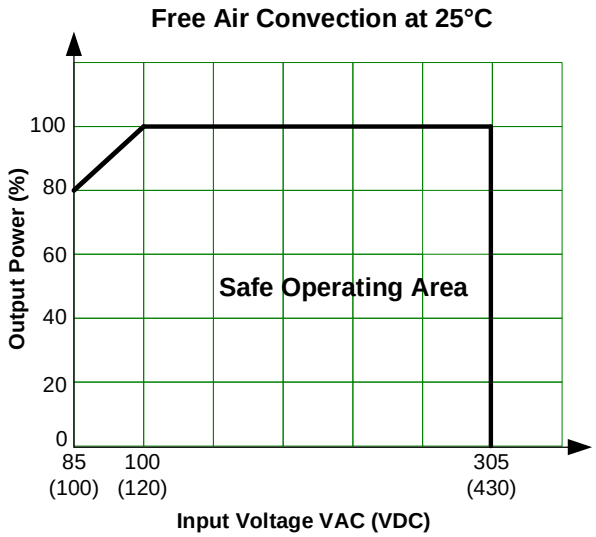
Safety Specifications

Parameters

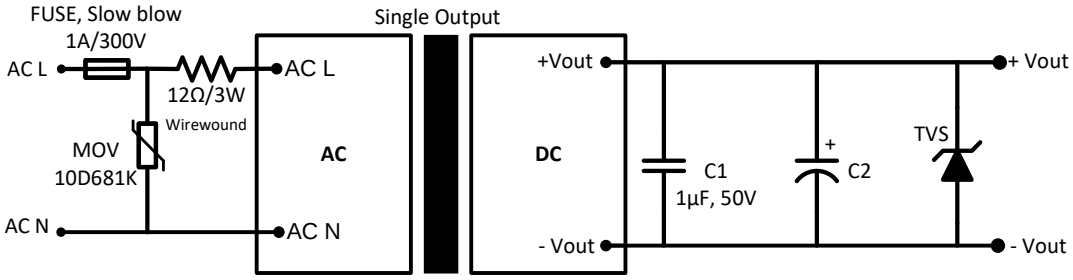
Agency approvals	IEC/EN/UL62368, EN60335, EN61558	
Standards	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B with no external component
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±6KV, Air ±8KV, Criteria B EN55014-2, Criteria B
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 10V/m, Criteria A EN55014-2, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 ±2KV, Criteria B with the typical application circuit IEC 61000-4-4 ±4KV, Criteria B with the recommended EMC circuit EN55014-2, Criteria B
	Surge Immunity	IEC 61000-4-5 L-L ±1KV, Criteria B with the typical application circuit IEC 61000-4-5 L-L ±2KV, Criteria B with the recommended EMC circuit EN55014-2, Criteria B
	RF, Conducted Disturbance Immunity	IEC 61000-4-6 10Vr.m.s, Criteria A EN55014-2, Criteria A
	Voltage dips, Short Interruptions Immunity	IEC 61000-4-11 0%, 70%, Criteria B EN55014-2, Criteria B

Derating





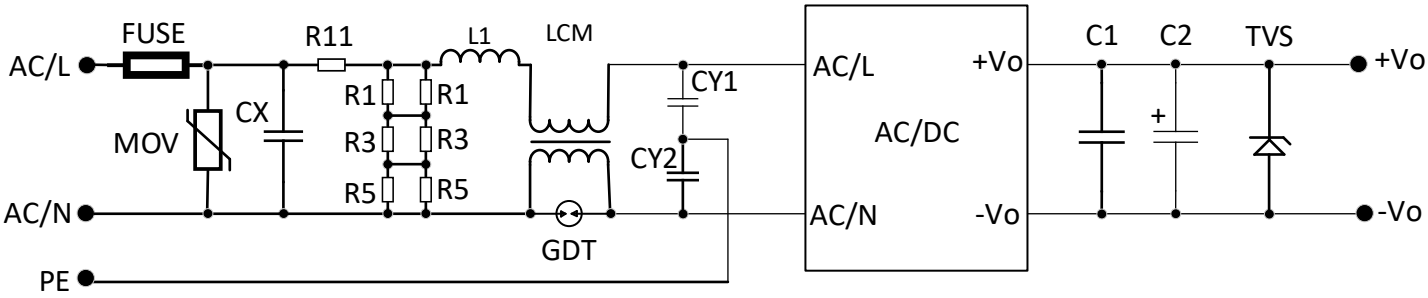
Typical Application Circuit



Model	C2	TVS
3.3, 5Vout	150μF, 16V	SMBJ7.0A
9Vout	120μF, 35V	SMBJ12A
12, 15Vout	120μF, 35V	SMBJ20A
24Vout	68μF, 35V	SMBJ30A

For filtering components:
The input fuse is recommended to use slow blow type. Choose capacitors with at least 20% voltage margin. The C2 capacitor is recommended to use electrolytic type with high frequency and low ESR rating. The C1 capacitor is recommended to use ceramic type for filtering high-frequency noise.

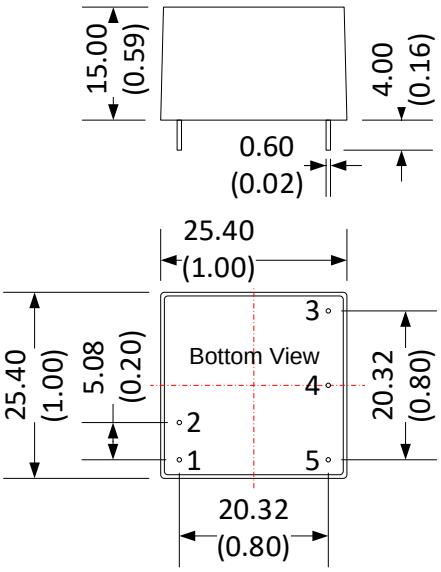
Recommended EMC Circuit

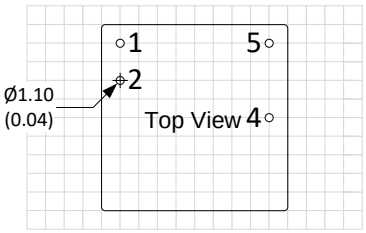


MOV	CX	R11	L1	LCM	GDT	CY1, CY2
14D681K	334K, 305VAC	33 Ohm, 3W	1.2mH, 0.3A	20mH	300V, 1KA	1nF, 400VAC

*FUSE to be 2A, 300V, slow blow. *R1 … R6 is the bleeder resistance of CX – 1.5Mohm, 150VDC

Dimensions





Grid size: 2.54*2.54mm

Pin Output Specifications	
Pin	Function
1	AC Input (N)
2	AC Input (L)
3	No Pin
4	-V Output
5	+V Output

Note:
Unit: mm(inch)
General tolerance: ±0.5 (±0.02)
Pin diameter tolerance: ±0.15 (±0.006)